

SECOND AUXILIARY REQUEST

Claims

1. A refrigerant composition which comprises:

- (i) ~~pentafluoroethane, 1,1,1,2- or 1,1,2,2-tetrafluoroethane, 1,1-difluoroethane, trifluoromethoxy-pentafluoroethane, 1,1,1,2,3,3,3-heptafluoropropane or 1,1,1,2,2,3,3-heptafluoropropane, or a mixture of two or more thereof~~, in an amount from 30 to 50% by weight based on the weight of the composition
 (ii) ~~an unsubstituted hydrocarbon of the formula C_nH_m in which n is at least 4 and m is at least 2n-2, other than methyl propane~~, in an amount from 1 to 4% by weight based on the weight of the composition. *n-butane*

with the remainder, not exceeding 60% by weight based on the weight of the composition, being:

- (iii) ~~pentafluoroethane, trifluoromethoxydifluoromethane or hexafluorocyclopropane, or a mixture of two or more thereof.~~

2. A composition according to claim 1 wherein component (i) is present in an amount of 50% by weight based on the weight of the composition.

~~3. A composition according to claim 1 or 2 wherein component (i) is 1,1,1,2-tetrafluoroethane or a mixture of said ethane with pentafluoroethane.~~

3. A refrigerant composition which comprises:

- (i) ~~pentafluoroethane, 1,1,1,2- or 1,1,2,2-tetrafluoroethane, 1,1-difluoroethane, trifluoromethoxy-pentafluoroethane, 1,1,1,2,3,3,3-heptafluoropropane or 1,1,1,2,2,3,3-heptafluoropropane, or a mixture of two or more thereof~~, in an amount from 50 to 75% by weight based on the weight of the composition
 (ii) ~~an unsubstituted hydrocarbon of the formula C_nH_m in which n is at least 4 and m is at least 2n-2, other than methyl propane~~, in an amount from 1 to 4% by weight based on the weight of the composition; with the remainder being *n-butane*
 (iii) ~~pentafluoroethane, trifluoromethoxydifluoromethane or hexafluorocyclopropane, or a mixture of two or more thereof.~~

~~5. A composition according to claim 4 wherein component (i) is 1,1,1,2-tetrafluoroethane or a mixture of said ethane with pentafluoroethane.~~

~~6. A composition according to claim 4 or 5 wherein component (iii) is pentafluoroethane.~~

~~7. A refrigerant composition which comprises:~~

- ~~(i) 1,1,1,2- or 1,1,2,2-tetrafluoroethane, or a mixture of pentafluoroethane and 1,1,1,2- or 1,1,2,2-tetrafluoroethane, in an amount from 30 to 94% by weight based on the weight of the composition,~~
~~(ii) an unsubstituted hydrocarbon of the formula C_nH_m in which n is at least 4 and m is at least 2n-2, other than methyl propane, in an amount from 1 to 4% by weight based on the weight of the composition,~~
~~(iii) pentafluoroethane in an amount from 5 to 60% by weight based on the weight of the composition with the proviso that the concentration of pentafluoroethane in the composition is not 5 to 20% by weight based on~~

~~the weight of the composition.~~

4. A composition according to any one of the preceding claims wherein component (ii) is present in an amount from 2 to 4% by weight based on the weight of the composition.
5. 5. A composition according to claim 4 wherein component (ii) is present in an amount from 3 to 4% by weight based on the weight of the composition.
10. ~~A composition according to any one of the preceding claims wherein component (ii) is a mixture of said hydrocarbons.~~
11. ~~A composition according to any one of the preceding claims wherein component (ii) comprises a hydrocarbon which possesses 4 or 5 carbon atoms.~~
15. ~~12. A composition according to claim 11 wherein component (ii) comprises a hydrocarbon which is n-butane.~~
6. 13. A composition according to ~~claim 12~~ ^{any one of the preceding claims} which comprises:
- (a) 46 to 46.5% by weight of pentafluoroethane
- (b) 50 % by weight of 1,1,1,2-tetrafluoroethane and
- (c) 4 to 3.5% by weight, respectively, of n-butane.
7. 14. Use as a refrigerant of a composition as claimed in any one of claims 1 to 13.
25. 8. 15. Use according to claim 14 in a refrigeration or airconditioning system designed to use chlorodifluoromethane as refrigerant.
16. ~~Use of a refrigeration composition which comprises:~~
30. (i) ~~pentafluoroethane, 1,1,1,2- or 1,1,2,2-tetrafluoroethane, 1,1-difluoroethane, 1,1,1,2,3,3,3-heptafluoropropane or 1,1,1,2,2,3,3-heptafluoropropane, or a mixture of two or more thereof, in an amount from 30 to 94% by weight based on the weight of the composition and~~
- (ii) ~~an unsubstituted hydrocarbon of the formula C_nH_m in which n is at least 4 and m is at least $2n-2$, other than methyl propane, in an amount from 1 to 10% by weight based on the weight of the composition, as a replacement for chlorodifluoromethane.~~
35. (iii) ~~pentafluoroethane in an amount from 5 to 60% by weight based on the weight of the composition, as a replacement for chlorodifluoromethane.~~
40. 17. ~~Use according to claim 16 wherein the composition is as defined in claim 13.~~
9. 18. The process for producing refrigeration which comprises evaporating a composition as claimed in any one of claims 1 to 15 in the vicinity of a body to be cooled.
10. 19. A refrigeration apparatus containing, as refrigerant, a composition as claimed in any one of claims 1 to 15.
45. 11. 20. A refrigeration apparatus according to claim 19 which is designed to use chlorodifluoromethane as refrigerant.

SECOND AUXILIARY REQUEST

Claims

- 5 1. A refrigerant composition which comprises:
- (i) 1,1,1,2-tetrafluoroethane, in an amount from 30 to 50% by weight based on the weight of the composition,
- (ii) n-butane in an amount from 1 to 4% by weight based on the weight of the composition,
- 10 with the remainder, not exceeding 60% by weight based on the weight of the composition, being:
- (iii) pentafluoroethane.
2. A composition according to claim 1 wherein component (i) is present in an amount of
- 15 50% by weight based on the weight of the composition.
3. A refrigerant composition which comprises:
- (i) 1,1,1,2- tetrafluoroethane, in an amount from 50 to 75% by weight based on the weight of the composition,
- 20 (ii) n-butane, in an amount from 1 to 4% by weight based on the weight of the composition,
- with the remainder being:
- (iii) pentafluorethane.
- 25 4. A composition according to any one of the preceding claims wherein component (ii) is present in an amount from 2 to 4% by weight based on the weight of the composition.
5. A composition according to claim 4 wherein component (ii) is present in an amount from 3 to 4% by weight based on the weight of the composition.

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6. A composition according to any one of the preceding claims which comprises:

- (a) 46 to 46.5% by weight of pentafluoroethane,
- (b) 50% by weight of 1,1,1,2-tetrafluoroethane and
- (c) 4 to 3.5% by weight, respectively, of n-butane.

7. Use as a refrigerant of a composition as claimed in any one of claims 1 to 6.

8. Use according to claim 7 in a refrigeration or airconditioning system designed to use chlorodifluoromethane as refrigerant.

9. The process for producing refrigeration which comprises evaporating a composition as claimed in any one of claims 1 to 6 in the vicinity of a body to be cooled.

10. A refrigeration apparatus containing, as refrigerant, a composition as claimed in any one of claims 1 to 6.

11. A refrigeration apparatus according to claim 10 which is designed to use chlorodifluoromethane as refrigerant.